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INCENTIVES AND DISINCENTIVES FOR THE ADOPTION OF SUSTAINABLE DEVELOPMENT BY TRANSNATIONAL CORPORATIONS

Report by the UNCTAD secretariat */

Summary

Sustainable development has become one of the most widely discussed topics in transnational corporations (TNCs), governmental bodies and academic institutions. However, sustainable development and commercial activity are often considered to be mutually exclusive. This report explores transnational corporations' reaction to this concept based on a survey about aspects of the nature of sustainability, what it means for the enterprise and its business activities, and the role that accounting can, and could, play in the pursuit of sustainability. The report also describes the factors behind the hypothesis of sustainability. In many instances, enterprise executives are not fully aware of the implications of environmental sustainability in the broader context. While a number of TNCs may wish to operate in a more environmentally friendly manner, financial pressure, contemporary markets and the traditional accounting model based upon historical costs are some of the factors which inhibit any substantial changes in TNCs' behaviour. The lack of understanding and formal guidance contribute significantly to the disparity. Furthermore, business-related research needs to be done in this area. Greater support from society as a whole can contribute to sustainable commercial activities.

*/ This report was prepared with the assistance of R.H. Gray and K.J. Bebbington of the University of Dundee, United Kingdom.

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I. BACKGROUND TO THE STUDY

A. Introduction

1. Perhaps the most important positive result to arise from the global environmental debate following the 1987 Brundtland Report[1] has been the almost universal acceptance of the goal of sustainability and sustainable development[2]. There has been an explosion of research into different aspects of sustainability and, at a more immediate level, nation States are producing sustainability plans, the European Union has set out its Fifth Action Programme entitled "Towards Sustainability"[3] and business, politicians, NGOs and local governments, among others, are all publicly recognizing the applicability of sustainability to their sector and areas of expertise.

2. What has not emerged, however, is a recognized consensus on what a sustainable global economy might look like, how we might get there and what implications this "path towards sustainability" might have for current ways of life. More especially, under the gloss of rhetoric, it is very unclear what business is doing, should do or, indeed, can do to re-direct economic activity towards more sustainable development.

3. This is a far from trivial issue. While it is clear that traditional economic activity and environmental degradation are closely linked, it is far from clear what degree of responsibility for this situation should be, or can be, laid on the shoulders of business. Global society has a right to expect business to do that at which it is most accomplished, i.e. to pursue traditional modes of efficiency, to seek market-led innovation and to respond rapidly and successfully to changes in the "playing field" -- changes in markets, prices, incentives, tastes and so on. It is not clear whether business can be expected to provide, on its own initiative, the innovative ways of thinking, the drastic re-design of life-styles, the costly structural re-adjustments and the major redistribution of wealth which are patently essential for a sustainable future. In this context, for example, the International Chamber of Commerce's (ICC) Charter for Sustainable Business[4] does not actually mention sustainability; and the influential analyses provided by, for example, The Business Council for Sustainable Development (BCSD) and The International Institute for Sustainable Development (IISD) offer absolutely no diagnosis of what sustainability actually might mean for business nor any assessment of how it might be achieved. What is offered in these documents, and correctly so from a business perspective, is a programme of actions which business can take which will be broadly sound economically and reduce the environmental impact of business activity. These actions can be effectively categorized as "pollution prevention pays" (PPP). The Environmental Management and Audit Systems (EMAS)[5] is a response to "green" consumers and the development of supplier chain audits. They have achieved considerable improvements in leading businesses. These steps must be further developed if environmental protection is to be effective. Indeed, such steps may very well be essential pre-requisites for any approach towards sustainability. However, such steps do not necessarily relate directly to sustainability and there is no reason why they might assure sustainability[6].

4. If we are to embark on the path towards sustainability and business is to play a major role in that journey, EMAS and related initiatives open the gate to that path. They represent little or no progress on the path itself. The reason for this lies in the nature of sustainability itself.

B. The nature of sustainability

5. Sustainability is an exceptionally difficult concept to define precisely[7]. The general definition of sustainability which is most widely accepted is that provided by the Brundtland Report and refers to development which:

> "...meets the needs of the present without compromising the ability of future generations to meet their own needs"[8]

While this proves to be a very good starting point, it is far too general a definition to be practicable. Indeed, its very generality has probably been the reason why the definition is so widely accepted[9]. However, it is proving increasingly possible to define elements of sustainability in a way which is both practicable and recognizably in harmony with the general definition. Two widely accepted and usefully defined elements of sustainability were employed in this study and these are outlined here.

6. First, sustainability is not only an environmental issue, it is also a social issue. That is, sustainability has essentially two closely related components which one can refer to as "eco-efficiency" and "eco-justice". The first refers to the issues of the physical environment and mankind's use of it, the second to the issues of inter- and intra-generational equity which are essentially social issues[10]. Whilst by far the greatest attention has been paid to the eco-efficiency concerns -- especially so in the business context -- the path towards sustainability must, by definition, involve some advancement in eco-justice issues.

7. Second, environmental economists have successfully provided a useful and practicable articulation of a number of the essential parameters of eco-efficiency and the inter-generational (but not intra-generational) equity/eco-justice issues[11]. First, we might usefully think of the planet and mankind's interaction with it as involving two kinds of things which we can call "Natural Capital" and "Man-made (or Created) Capital". The natural capital comprises the planet's resources (including eco-systems and waste-sink capacities) whilst man-made capital such as buildings, roads, knowledge, machines and consumer goods, which mankind has "created" from its own efforts employing the resources of the planet. There are two points to note here: (a) in general terms, most of the man-made capital is created at the expense of the natural capital so that as man-made capital rises, natural capital must fall; (b) in general terms, man-made capital is recognised by economic systems (and by accounting systems, see below) in prices whilst natural capital is not recognised. Much of the natural capital will therefore be treated as a free good and its decline will not register in measures of economic success such as GNP or accounting profit.

8. Furthermore, natural capital can be thought of as comprising two sub-categories: critical natural capital and renewable, replaceable or substitutable (or other) natural capital. The critical natural capital is that essential to the maintenance of life[12] and comprises the integrity of eco-systems, issues such as the maintenance of the ozone layer and protection of species which are close to levels of self-sustenance. Other natural capital is that which can be renewed (e.g. species through breeding or relocation of sensitive eco-systems), repaired (e.g. reclamation of desert or replanting of forests) or substituted or replaced (e.g. use of man-made substitutes for natural resources such as solar panels for fossil fuels).

9. A sustainable economic system is one which explicitly protects all critical capital, renews some elements of other natural capital and/or employs additions to man-made capital to substitute for depletions in other areas of natural capital. In addition, a sustainable economy would also address the massive inequities between races -- most obviously the North-South inequality -- in recognition of the intra-generational equity demand of sustainability. It is perfectly clear that no economic system (certainly no "developed" economic system) is currently sustainable under this analysis[13]. The question which then arises is "how large is the gap between current practice and the desired state of sustainability?".

10. It is probably impossible to answer this question accurately but that may not be important. For example, it is possible to undertake calculations to estimate the sort of expenditure that an economic system would have to bear in order to prevent further degradation of critical and non-substitutable natural capital and, then, to make further estimations of the expenditure necessary to move that "steady state" back to more sustainable levels of activity. Even under

the most conservative of estimates, these expenditures are so large as to have massive impacts on western levels of physical consumption. Indeed, Hueting and Ekins (see endnote 11) have argued that we should talk in terms of more or less un-sustainable activities in order to avoid detailed concerns about what sustainability really looks like. We know we are moving towards greater and greater levels of un-sustainability. The first task is therefore to start to reduce that un-sustainability. This will be massively expensive and disruptive. Furthermore, this is without addressing thorny matters of eco-justice and more equitable distributions of consumption, wealth and environmental impact.

C. The sustainable business?

11. If business is to be part of the process of re-directing economic activity away from increasing un-sustainability then it may be useful to assess whether business can be sustainable under present economic arrangements. And if so, how? It follows from the above analysis that, at a minimum, a sustainable business is one which leaves the environment no worse off at the end of each accounting period than it was at the beginning of that accounting period. For full sustainability, the sustainable business would also re-dress some of the excesses of current un-sustainability and consider the intra-generational inequalities. It is perfectly clear that few, if any, businesses, especially in the developed economies, come anywhere near to anything that looks remotely like sustainability.

12. Environmentally aware companies have stated within their publications opinions such as:

> "... very few businesses can be said to be sustainable in their operations, since in one form or another their activities consume non-renewable resources, whether directly through travel or their use of raw materials or indirectly through their use of energy."
> (IBM UK, Progress Report, 1993, p.38)

> "We challenge the notion that any business can ever be 'environmentally friendly'. This is just not possible. All businesses involve some environmental damage. The best we can do is clear up our own mess while searching hard for ways to reduce our impact on the environment."
> (Body Shop, Green Book, 1992)

> "Few, if any, businesses could claim to be anywhere near this position [of sustainable development] at present, but a number, including BT, have begun to consider what it might mean."
> (British Telecom, Environmental Performance Report, 1993, p.35)

> "I strongly believe that economic development and environmental protection should be pursued as mutual goals, but I have real doubts about the extent to which any company can manage its operations on a truly sustainable basis."
> (Thorn EMI Environmental Report, 1994, p.4)

> "At first sight the concept of sustainable development seems straightforward. But if its implications are examined, it becomes clear that a fundamental rethinking of attitudes towards production and consumption is required on the part of companies, society and the individual."
> (Ciba Geigy Ltd, Corporate Environmental Report, 1992, p.14)

13. These statements contrast markedly with the casual use of the term "sustainable" which one will find in the environmental reports of a number of transnational corporations (TNCs) which assert to such matters as their "sustainable forestry policies", or "sustainable use of resources" or the "pursuit of sustainable resource use through constant improvement in efficiency" and so on. These are not statements about sustainability and mis-use through mis-

understanding, an important and seriously challenging concept.

14. A particularly clear case for the un-sustainability of business is expressed by Dr. Chris Dutilh of Van den Bergh (Unilever) Netherlands. Dr. Dutilh illustrates the case by reference to two diagrams -- shown here as Figures 1 and 2.

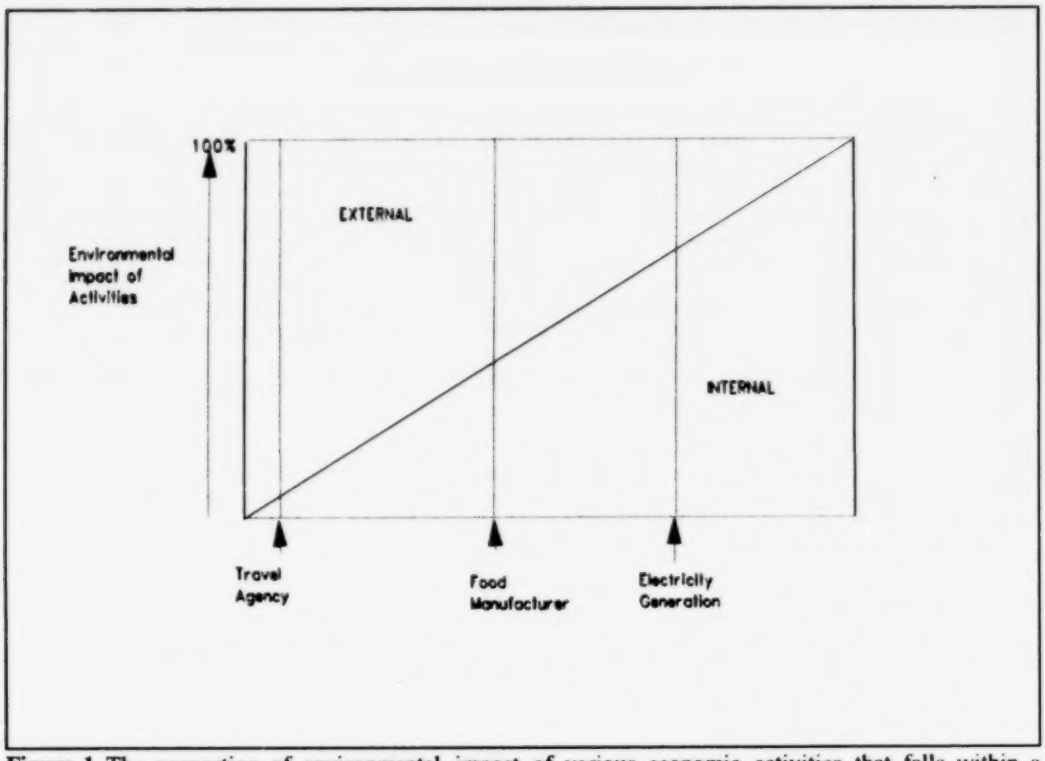

Figure 1 The proportion of environmental impact of various economic activities that falls within a company's control. (With acknowledgement to Dr Chris Dutilh).

15. Figure 1 attempts to recognise the full environmental impact of different economic/business activities. (This full impact could equally well cover eco-justice issues as well). Some proportion of the environmental impact is under the control of the company or industry concerned (for example, the use of energy) whilst some of the impact is (currently at least) outside the business' control (for example, supplier, customer and disposal aspects). The proportion which is within or without the business' control obviously varies considerably between economic activities. Three possible examples of these are shown along the bottom of Figure 1. For example, a travel agent will have very little direct impact on the environment although the activity of tourism itself has a massive impact through the activities of operators. On the other hand, food manufacturing has a major impact within the company's control but there is still a considerable degree of impact represented by the activities of (for example) agricultural suppliers and the actions and lifestyles of consumers. Finally, electricity generation incurs most of its environmental impact on the site of generation and a lesser impact is outside the company's control in the form of, for example, supply of the fuel[14]. Any company, by itself, can control only a small proportion of the total impact. This is shown in Figure 2. The company can manage through EMAS-related control and innovation a substantial minority of the overall

environmental impact of its activity. This proportion is greater, the greater the proportion of the total impact that lies within the company's control. The motivation for these EMAS-related controls and innovations will, on the whole, be economic -- of the "pollution prevention pays" variety. Further reductions in environmental impact are possible through supply-chain initiatives and through educating the consumer of the product. However, together these two initiatives can still only reduce a relatively small proportion of the activities' overall environmental impact. The rest of the impact lies outside the control of the company. In particular, it lies in the hands of governments, individual employees, individual consumers, overall lifestyles and, at a societal level, general aspirations and expectations.

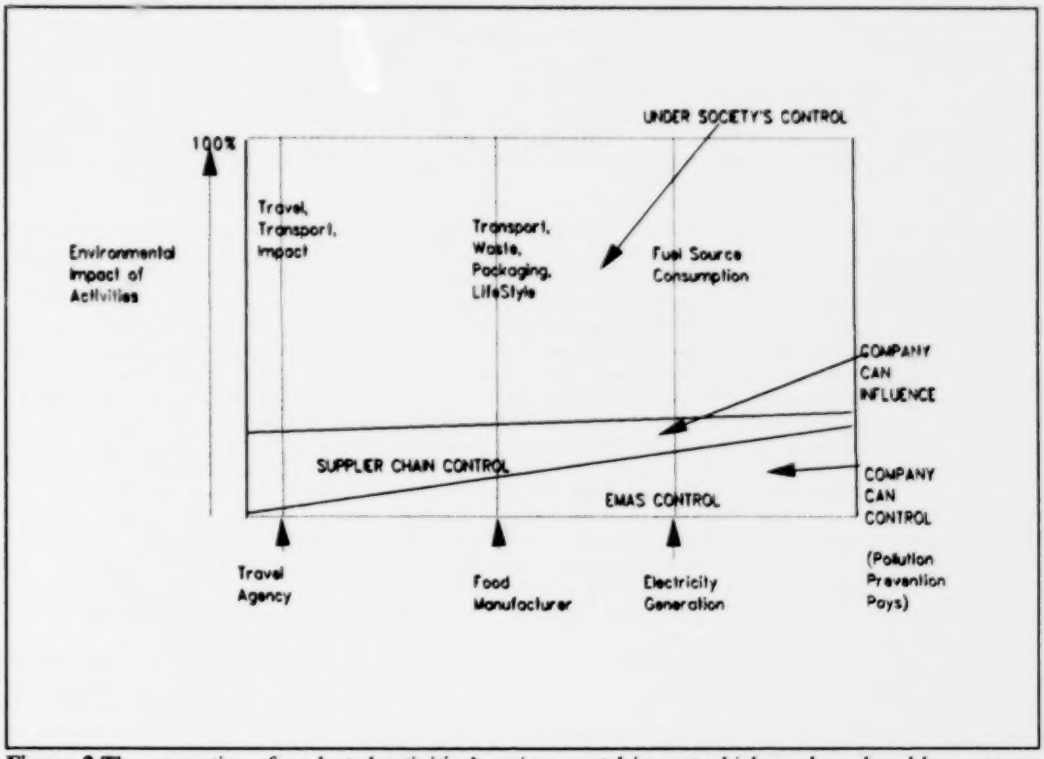

Figure 2 The proportion of a selected activities' environmental impact which can be reduced by company action. (With acknowledgement to Dr Chris Dutilh).

16. There is, probably, a further layer of influence that could be added to Figure 2. This would relate to the company's own influence on consumption patterns and tastes through activities such as advertising, style-changes and lobbying. However, many companies argue that no single company can pull back from, for example, encouraging people to consume its products as this will probably leave the company at a major economic disadvantage *vis-a-vis* other companies in the industry. This issue, most companies would argue, is also a case for society to decide. Society must set the terms for business. Business will respond.

17. Taken from this perspective, then it is wholly unreasonable for society to expect business to become sustainable under its own initiatives. If economic systems are to move towards sustainability, then the "rules of the game" will have

to change. How much influence companies have on that process is largely a question of one's perspective. It is perfectly clear that business is not, and cannot be, sustainable under present economic conditions. The issue to be investigated is not, therefore, with business sustainability, *per se*, but the steps that companies are taking to reduce their un-sustainability and the extent to which they are aware of the problems that the path towards sustainability is placing in their way.

18. It is in this context that accounting has several important roles to play.

D. Accounting for sustainability? Accounting towards sustainability?

19. Accounting in its broadest sense[15] can play, and does play, a number of roles in the company's pursuit of sustainability. Some of these roles are positive (in the sense of encouraging the corporation to move towards less-unsustainable actions) whilst others may be negative (in the sense of sending signals which encourage environmentally-malign behaviour and in offering resistance to new initiatives designed to encourage more socially and environmentally sensitive behaviour).

20. The negative roles that accounting can play have been widely described[16]. Broadly speaking conventional accounting and finance can hold back the pursuit of eco-efficiency through means such as: restrictive budgeting practices; short-term profit-centred performance measurement; overly restrictive capital budgeting and new product decision-making; encouraging stockmarket focus on bottom-line profit and measures such as earnings-per-share; and, perhaps most importantly, through its influence on the way in which organisations and organisational success are constructed through measurable forms of control which may well be in conflict with a wider, values-centred approach to organisational management, (see below). Similarly, accounting and finance can play malign roles in the pursuit of eco-justice. Some of the most obvious of these arise from international transfer pricing as a mechanism for reducing host country control of multi-national corporations and from the emphasis that conventional accounting inevitably places on shareholder returns at the expense of other stakeholders[17]. Thus, issues of plant closures, relocation, wage bargaining, directors' remuneration, take-overs and mergers all have implications for the distribution of wealth both within developed economies and between developed and under-developed economies.

21. On the other hand, accounting can play a very positive role in helping companies develop environmentally and socially sensitive policies. To date these positive roles have tended to be less developed than the negative roles, but increasingly companies (and accountants) are recognising how accounting and financial systems can be employed in innovative ways. These are broadly summarised in Figure 3.

22. However, there is one final point to stress before turning to look at the data collected. It is not necessarily the case that accounting and financial systems play an all-embracing role in an organisation. Indeed, it is quite possible that an organisation serious about sustainability would take every step to reduce the influence of the conventional accounting and financial systems. One way of recognising this is shown in Figure 4. Most traditional and large companies will probably be "performance-centred" with an active accounting system. In some, the accounting and financial systems will be more passive, responding and reactive rather than proactive. Whilst the financial systems will record "success/failure", the targets, objectives, goals, and missions of the company are likely to be expressed more in terms of growth, market share and quality statements. In others, the accounting and financial systems will be active, providing the direction for the organisation. In these organisations the targets, goals and missions will be expressed in financial terms. Thus, for example, maintenance and increase of earnings per share may well be the goal of the organisation and all performance expressed in terms related to it. Such companies may be recognised, also, by an appetite for profit-rich acquisitions.

FIGURE 3: ROLES OF ACCOUNTING IN THE PURSUIT OF SUSTAINABILITY

STAGES OF ORGANIZATIONAL DEVELOPMENT	ECO-EFFICIENCY ISSUES	ECO-JUSTICE ISSUES
Improvement within current economic orthodoxy (Reducing un-sustainability):	* EMAS accounting - for wastes, efficiency, energy, pollution, etc. ("Pollution Prevention Pays"); * Reworking investment appraisal methods; * Contingent liabilities, asset revaluation and other financial reporting issues; * Tellus Institute methodology; * Basic environmental reporting.	* Employee and employment reporting, information for collective bargaining; * Value-added statements; * Bilan Social; * Community reporting; * Stakeholder analysis.
Recognition of the demands of sustainability	* Sustainable cost calculation and reporting; * Full cost accounting (EU 5th Action Plan); * Advanced environmental and sustainability reporting (including LCA and oköbilanz) - accountability and transparency.	* Full social reporting and social bookkeeping systems; * External social audits; * Transparency on transfer pricing and resource acquisition issues; * Accountability and transparency

FIGURE 4: ROLE OF ACCOUNTING IN THE COMPANY'S ENVIRONMENTAL RESPONSE		
	TYPE OF COMPANY	
TYPE OF ACCOUNTING SYSTEM	Performance-Centred (Accounting often dominant)	Values-Centred (Accounting less important)
Accounting System Passive	Driven by stock market, profit, financial performance appraisal	Other mechanisms used to identify financial efficiency - if at all
Accounting System Active	Methods of accounting explicitly linked to company's goals	Actively part of management process - BUT very constrained

23. Values-centred companies are, base upon experience, rather more rare. But companies such as Body Shop (UK), Traidcraft (UK) and Ecover (Belgium) are values-centred companies with passive accounting systems. They are characterised, very often, by a protected or unusually sensitive shareholding structure that prevents the company from predatory action in the stockmarkets. Whilst it is difficult to be certain, the actions of Ben and Jerry's (United States) -- a company widely recognised as values-centred -- appears to have an active accounting and financial system in that the development and expansion policy of the company appears to be tightly controlled in financial terms but, on the surface at least, the financial systems appear to be integrated with, and subservient to, the company values[18].

24. The outcome of these differences means that, in the values-centred company any development of the accounting and financial systems to encourage more environmentally and socially-sensitive behaviour may well be counter-productive. The values of the company will drive behaviour in these directions and the accounting systems will simply follow as required. On the other hand, in the performance-centred companies, it is highly unlikely that much progress can be made on either the eco-efficiency or eco-justice fronts without the developed support of refined and improved accounting and financial systems.

E. Investigating the issues

25. These were the background issues which informed and determined (a) the way in which the questionnaire was developed and subsequently used and (b) both the selection procedure for companies which form the case-studies and the way in which discussions were held in the companies. It is in the context set out above that the results are interpreted and, as shall become apparent, certain of the responses in the questionnaires might have led to alternative interpretations if the analysis started from a different point of view. As with all data, the researchers' orientation as described above should be noted when drawing conclusions. (More details on the method and mechanisms of the research are given in Appendix A, which is a separate document and is available only in the English language.)

II. QUESTIONNAIRE RESULTS

26. Although questionnaires were received from companies in different countries, from different industry sectors and of a variety of sizes[19] there was notable commonality of views about aspects of the nature of sustainability, what it meant for the business and the role that accounting can, and could, play in the pursuit

of sustainability. This section reviews these results and follows the structure of the questionnaire itself (see Appendix B which is also a separate document and available only in the English language).

A. The nature of sustainability

27. Respondents were offered a range of statements concerning the nature and implementation of sustainability in business and were asked to indicate their agreement or disagreement with these[20]. There were 8 of these statements with which 75 per cent or more of the respondents could agree. These are shown, with the percentage agreeing, in Figure 5.

FIGURE 5: VIEWS ON THE NATURE OF SUSTAINABILITY

Business' pursuit of sustainable development.....	Percentage agreeing with the statement
..requires a partnership approach from government, business and society	96
..means tackling both social and environmental problems	86
..requires balancing the needs of the economy with environmental protection	86
.. is compatible with the profit ethic	82
..will involve all parts of society in discussion and implementation	82
..involves fundamental changes in attitudes and values	82
..is possible	78
..is likely to be complex and require extensive changes	75

28. Respondents also seemed to be in broad agreement on the compatibility of sustainability with economic growth (67 per cent) and that businesses' pursuit of sustainable development involved: consideration for people of developing countries (74 per cent); commitment from the financial markets (70 per cent); and, concern for wealth distribution between nations (66 per cent).

29. On the other hand, there was also evidence that business (as a whole) does not hold a single, clear interpretation of sustainability. Two factors point to this. First, more than one quarter of the respondents were undecided about issues such as: the role of environmental management systems; the role of accounting systems; the magnitude of the costs involved; the compatibility of sustainability with economic growth; and, the extent to which sustainability was currently achieved in the respondent's business. This indecision is important because it highlights that a number of organisations lack direction in their search for a sustainable path. Second, and far more persuasive, is the number of companies which believe: that sustainability does not involve the needs of future generations (59 per cent); that sustainability is synonymous with environmental management systems (45 per cent); and that their organisation already achieves sustainability (37 per cent). Such beliefs seem completely at variance with the most basic and commonly accepted parameters of sustainability.

30. The essence of the enquiry in this question concerned three basic issues or groups of issues: (a) did companies see sustainability as compatible with the

status quo?; (b) did companies appreciate the eco-justice as well as the eco-efficiency issues?; and, (c) did companies appreciate the difficulty of the challenge set by the concept?

31. If sustainability is compatible with the status quo it will be "achievable", compatible with profitability and compatible with economic growth. Forty-one percent of the companies agreed that sustainability was all three. This is shown in Figure 6 as seeing sustainability as "compatible with the status quo". On the other hand, no companies saw sustainability as it is usually typified in the literature as being exceptionally difficult, incompatible with both economic growth and the profit ethic and probably involving something other than a "balance" between economy and the environment. Most companies (59 per cent) gave mixed responses to these questions.

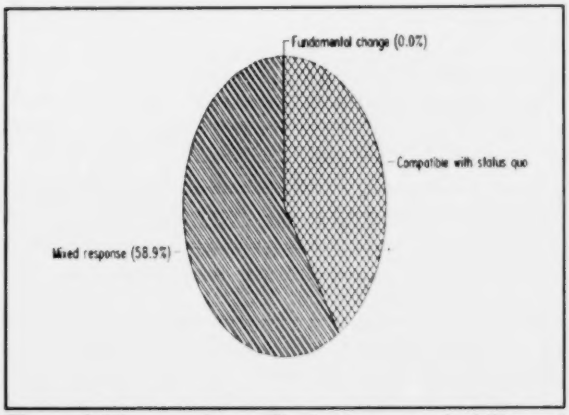

Figure 6: Views on the conflict between sustainability and economic criteria

32. Secondly, if companies recognised the importance of the eco-justice issues then, within question 1 they could be expected to agree broadly with questions relating to partnership issues, accountability and transparency, future generations, wealth distribution and third world issues. The proportion of companies subscribing to these views is shown in Figure 7. The majority of companies display a consistently positive attitude to those aspects we have labelled "strong" eco-justice. That is, they appear to be highly aware of and supportive of the social requirements of sustainability. On the other hand, very few companies expressed views entirely at variance with a recognition of the eco-justice point of view. (This 1.4 per cent is shown as "weak eco-justice" in Figure 7). Nearly half of the respondents (45 per cent) gave a mixed response on this issue.

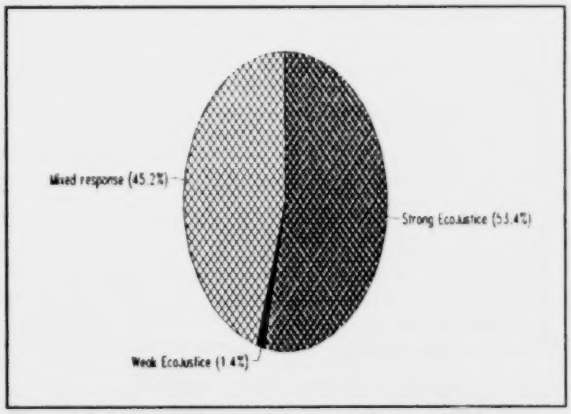

Figure 7: Recognition and support for eco-justice

33. Finally, a company which had a good grasp of sustainability would appreciate that the path towards sustainability would involve changes in attitudes and values, would be complex and probably costly. The 37 per cent of companies subscribing to this view are shown in Figure 8 as recognising that a "complex readjustment" is needed. No companies expressed views that indicated the transition would be entirely straightforward ("simple readjustment"). The majority of companies had a mixed response to the issues.

34. It is difficult to draw clear conclusions from this question. However, the data suggests that although there are signs of a lack of sophistication in companies' understanding of the implications of sustainability, respondents do appear to recognise that eco-justice issues are relevant and also to recognise that the path towards sustainability is likely to be complex.

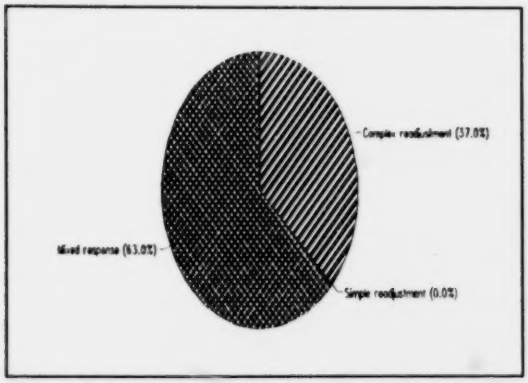

Figure 8: Recognition of the readjustment necessary for sustainability

B. Influences on understanding sustainability

35. The sources of respondents' understanding of the concept are important because sustainability is both a difficult and emerging concept. Different sources give different insights into the issues and emphasise different aspects of how to move towards sustainability. Furthermore, knowledge about the sources that companies consult may have implications for those bodies who are seeking to help business develop its posture of response to the issue of sustainability. Over 70 per cent of respondents were influenced by, *inter alia*, the ICC, Agenda 21 and the Rio Summit, their own company, books and economic journal articles, the media, the Brundtland Report, their national government and professional or trade associations. Of these, easily the most influential were the first four. The BCSD, the EU's Fifth Action Programme[21], environmental pressure groups, the World Conservation Strategy and other non-governmental organizations (NGOs) were the least influential sources of understanding.

36. Some inference may be drawn from this. The influence of the respondent's own company is not unexpected but, given that the questionnaire was completed by the member of that company who understood the issues best, the influence is confusing. That is, (a) there is no *a priori* reason why a company should have a sophisticated understanding of the issue; and (b) if anybody within the company did understand the issue it would be the person completing the questionnaire. It is likely therefore, that the influence of the company was concerned with whether or not initiatives towards sustainability could be taken -- rather than an influence on the understanding itself. Agenda 21 would not have provided much direct guidance to a company seeking sustainability but, clearly, raised the issue to a significant degree in the global context. Its influence seems, again, to be one of awareness and changes of the political agenda for the environmental management team. So the principal influences on understanding are the respondents own self-education through books and journals and the ICC. It was expected that the influence of the ICC (and, less correctly, the BCSD) would be high. The fact that the ICC does not actually address sustainability goes some way towards explaining what look like naïve understandings of the concept amongst many of the respondent businesses.

C. Definition of sustainability

37. Commentators have argued[22] that the very general nature of the definition of sustainability has been instrumental in permitting widespread agreement about its desirability. A more specific definition might raise conflicts over, *inter*

alia, issues of redistribution of wealth and challenges to existing western patterns of development and consumption. And yet previous work[23] has identified that companies need specific guidance on the implications of the term if they are to address the issue directly. Over 60 per cent of respondents said they favoured a more specific definition of the term. Later questions also addressed this issue and a substantial minority of respondents (36 per cent) suggested that the lack of precise definition was a real constraint on their moves towards achievement of sustainability. It is not clear to what extent companies who recognise the need for more precision in the application of the term appreciate the implications this may have for current economic orthodoxy. For example, it is apparent that some of the best-informed respondents did not want a specific definition of the term because they did appreciate its potential implications for business practices whereas some of the least-informed wanted a less-general definition simply because they did not appreciate the extent to which the pursuit of sustainability involved far more than sophisticated EMAS. If we believe that development of EMAS is a useful step towards sustainability then a more specific definition may be premature. On the other hand, the implications of the term require very careful debate and examination and this may be a matter that policy-making bodies should be addressing at as early a stage as possible. In the absence of a specific definition, sustainability may be becoming a "motherhood" term whose parameters are left in the hands of industry groupings such as a nation's confederations of business, the ICC and the BCSD. This is certainly practicable in the short term. It may not be effectual in the long term.

D. Formal recognition of sustainability in the company

38. Eighty-two percent of respondents said that their company formally recognised sustainability. Ironically, the majority of these "formal recognitions" did not explicitly cite sustainability or definitions of sustainability. There was, on the whole, recognition of the environmental agenda within policy statements as well as recognition of the need for development of EMAS and related initiatives. In less than 20 per cent of cases could some explicit recognition of the term be offered as evidence of the formal recognition by the company. This, again, suggests that a high proportion of companies have yet to appreciate that general environmental policy statements coupled with EMAS does not guarantee sustainability. This was recognised by the majority of the companies which replied that their organisation did not formally consider sustainability. Eleven percent of respondents described their (significant) steps towards environmental management but explicitly recognised that these are not necessarily sufficient for a formal recognition of sustainability. One of the very few clear country exceptions was apparent here. Half of the Dutch companies clearly understood sustainability but clearly recognised that their advancement of EMAS did not guarantee its achievement.

E. Encouraging moves towards sustainability

39. Easily the biggest influences on respondents in "their moving towards sustainability" were the laws (actual and impending) and market opportunities. Over 86 per cent and 90 per cent of companies, respectively, cited these influences. This more than anything, illustrates the potential confusion over the meanings of the term "sustainability". Whilst the term has now crept into some areas of some national laws, there is no evidence that current or immediately impending laws actually addresses the structural changes that sustainability will require. Furthermore, there are remarkably few market opportunities which can be demonstrated to be commercially attractive and inherently sustainable. What we know from elsewhere[24] is that these influences are significant in encouraging companies on the path towards better environmental stewardship and management. Similarly, the third and fourth sources of encouragement -- the company's national government (79 per cent) and employees (74 per cent) -- have been widely recognised as important influences on a company's environmental response. Other sources of encouragement towards sustainability included the European Union (70 per cent), industry associations (64 per cent)[25], customers (64 per cent), NGOs (58 per cent) and pressure groups (51 per cent).

40. The increasing doubt which the questionnaires engendered as to whether or not most companies appreciated the full implications of sustainability were further reinforced by this question. That is, very few companies identified any of the sources as discouraging moves towards sustainability. This is clearly incorrect.

41. This was also the first stage at which accounting and financial systems entered the enquiry. Whilst a substantial proportion of respondents considered that capital markets (49 per cent), the financial accounting system (67 per cent) and financial institutions (73 per cent) played no part in encouraging or discouraging moves towards sustainability, these three were the principal sources identified by companies as discouraging sustainability. (See also part G below). Eight percent believed that capital markets and financial institutions discouraged them, whilst 14 per cent identified the financial accounting system as a major discouragement of any moves towards sustainability.

F. Activities which encourage moves towards sustainability

42. Respondents were offered a range of activities and asked to identify which might move their organisation towards sustainability. Figure 9 summarises some of the results from this question[26]. In broad terms, companies, as expected, are generally well-informed about eco-efficiency and environmental management issues. The level of activity in these areas, whilst no cause for complacency, is also broadly in line with other surveys.

43. Companies are less enthusiastic about accountability and transparency issues. But even here, there is something approaching agreement on the importance of openness. Notably, redesign of the accounting system was the area, companies considered, that would contribute least to the pursuit of sustainability. More significantly still, it was the two specifically accounting-related areas of investment decisions and developments of accounting systems on which companies were least sure on how to proceed. This seems to point to a need for wider dissemination of proposals and further practical research work into the issues.

G. Constraints on the pursuit of sustainability

44. Whilst 16 per cent of respondents replied that sustainability was unimportant to the organisation and 23 per cent suggested that there was no demand for the company to pursue the concept, most companies which identified constraints saw the principal constraints they face as comprising: a lack of guidance (47 per cent), clear definition (36 per cent) and support (53 per cent); a problem of priorities (51 per cent); and accounting-related problems (47 per cent). Probably most importantly, however, company views on the issue of constraints were widely dispersed. There is no unanimity on this issue. Virtually half of the respondents saw few, if any, constraints on their capacity to pursue sustainability. Those who did see constraints wanted further government support and guidance and/or saw that current measures of success (e.g. growth and profit) and the present system of accounting as their principal impediment[27]. At this stage it is not possible to determine possible explanations of why these differences in views arise. At least part of it, we infer, is related to the understanding of sustainability but there are likely to be other issues that will require further analysis to isolate. There would certainly appear to be policy-implications in even these initial findings.

H. Accounting and financial systems issues

45. As might have been expected, accounting and finance have not appeared as central issues in companies' responses about sustainability. Most companies have not seen profit or the capital markets as either major problems or potential sources of conflict. As a result, it is no surprise to discover that accounting is one of the least developed areas of companies' response to the sustainability agenda. And yet, accounting is clearly an area on which a substantial minority of companies need further guidance and where significant future developments and

problems may emerge. It was central to this project to try and investigate these matters further.

46. Figure 10 summarises the dominance of the accounting system in company management. The diversity of views amongst company respondents is again apparent in this figure. While a majority of companies are accounting-dominated in traditional areas of decision-making, practice varies considerably in other areas -- especially those related to social and environmental matters. This diversity of experience may be part of an explanation as to why respondents were less unanimous on the role of accounting in the pursuit of sustainability -- in less accounting-dominated, more values-centred organisations, management may well look to other measures to appraise and assess options without keeping one eye firmly on the "bottom line". This, again, deserves further investigation.

47. Which brings us to two of the central questions which this research sought to answer -- "what innovative accounting methods are being used by companies?" and "why?". The results are not especially encouraging at this stage of development. Only a minority of respondents are familiar with a number of the accounting options devised to help a company assess its path towards sustainability. A further minority is actually experimenting with these options. If accounting-related techniques do have a role to play in helping companies redirect their activities -- and it seems increasingly certain that they do -- more effort needs to be exerted in disseminating these proposals and encouraging companies to experiment with them. Other evidence suggests that both LCA and mass-balance/oköbilanz techniques have real practical benefit for the companies themselves as well as highlighting the real issues facing a company considering addressing sustainability seriously. Other methods are less widely applied in practice as yet but deserve practical experimentation -- if only to either reject them or develop ways around their practical problems. There is clearly a need for more education of companies in this area.

FIGURE 9: IMPORTANCE OF SELECTED ACTIVITIES ON MOVES TOWARDS SUSTAINABILITY

	Percentage of Companies Responding			
	Will contribute towards sustain-ability	Will not contribute towards sustain-ability	Company is active in the area	Company not sure how to proceed
Reduction in energy usage	96	1	74	0
Reduction in the consumption of resources	96	1	67	0
Reduction in the volume and toxicity of wastes	85	3	67	1
Targets for moving towards sustainability	84	3	48	8
Recycling	82	4	68	3
Commitment to an environmental management and audit system	81	7	66	4
Use of social and environmental criteria in capital budgeting and investment decisions	74	5	40	21
Reporting on the achievement of sustainable development targets	74	4	48	8
Product design to increase the life of the product and improve reparability	74	11	41	10
Providing information to share-holders and financial community on your social and environmental impact	67	4	55	10
Policy statements regarding the pursuit of sustainable development	64	10	56	3
Being open to scrutiny by groups and individuals outside of the organisation	56	15	47	4
Redesigning the accounting system -e.g. for full cost accounting or for environmental provisions	51	14	19	23

FIGURE 10: ACCOUNTING'S DOMINANCE IN COMPANY DECISION-MAKING				
	Percentage of companies who indicated that accounting and finance systems and criteria			
	..dominate organizational decisions	..are just one set of criteria	..are dominated by other criteria	No response
Medium and short term planning	78	15	5	2
Capital expenditure and investment	75	18	5	2
Divisional performance evaluation	71	22	5	2
Corporate strategy	59	34	5	2
Managerial performance evaluation	52	36	10	2
Relationships with the financial community	51	32	16	1
Purchasing decisions	47	45	7	1
Make or buy decisions	41	48	7	4
Remuneration of senior executives	33	40	25	2
Environmental projects	30	42	26	2
Environmental standards and targets	27	37	34	2
Research and development initiatives	26	41	32	1
Staff training	22	49	27	2
Community involvement	16	36	45	3

48. Finally, the questionnaire offered companies a range of accounting-related activities which are known to have been successfully applied in organisations and which can contribute to both environmental sensitivity and economic success. In the light of this, the fact that only 75 per cent of respondents identified either accounting for energy costs and/or accounting for waste costs, and only 32 per cent are using accounting to help allocate environmental overheads, is disconcerting. We are looking here at some of the world's leading companies and they are not yet employing their accounting systems in those areas where the economic and environmental savings are the most pronounced and the simplest to identify. Identification of various costs was the most popular use of the accounting systems with, in addition to wastes and energy, EMAS costs (70 per cent), investment procedures (68 per cent), compliance costs (64 per cent) and packaging retrieval and disposal costs (56 per cent) the most popular. Other significant areas of accounting-related activity were environmental reporting (67 per cent) and identification of market opportunities (59 per cent).

FIGURE 11: COMPANIES EMPLOYING OR FAMILIAR WITH 'NEW' ACCOUNTING METHODS

	Percentage of Respondents who..		
	Are using this is approach	Are familiar (but not using) this approach	Are unfamiliar with this approach
Life Cycle Assessment with financial numbers assigned to physical flows	16	15	48
Extended cost benefit analysis	14	10	48
Full cost accounting (e.g. the Tellus Institute)	11	14	51
Eco-balance sheets/Oköbilanz (e.g. The Danish Steel Works) with financial numbers assigned	10	16	58
Net environmental value added calculations (such as that done by BSO/Origin)	8	4	74
Full cost pricing (e.g. EU Fifth Action Plan)	7	14	52
Social Auditing (e.g. Traidcraft or Sbn Bank)	7	0	77
Sustainable cost calculation (e.g. CSEAR)	5	3	78

49. The most striking results to emerge from this area, however, related to what companies did not see as important and/or on which companies were unsure as to how to proceed. It is now widely accepted[28] that any significant movement towards environmental sensitivity -- let alone towards sustainability -- requires a link to be drawn between the economic (financial accounting) performance and environmental performance of a company. The first step in this direction involves conventional financial accounting adjustments. For very few companies indeed are these matters unlikely to be important. However, a significant minority of respondents saw such matters as "not important/not sure how to". These included: disclosure in financial statements (25 per cent unimportant/14 per cent not sure how to); environmental contingent liabilities (18/19 per cent); environmental provisions (27/14 per cent); revaluation of land and inventory (19/12 per cent); relationships with shareholders and the financial community (21/4 per cent); meetings with analysts and ethical investment trusts (36/10 per cent); and liaison with the financial auditors (37/14 per cent).

50. Whilst some of these views on the lack of importance of financial accounting issues (as well as lack of clarity on procedure) could be traced back to (a) countries with either a less active stock market or an accounting profession which has taken less of a lead on accounting for the environment

and (b) industries which perhaps might be expected to be less exercised by such matters, this was by no means true in all cases. Indeed, a number of the respondents confirmed that many companies are either unaware of the financial issues that may attach to environmental matters or else they are simply waiting until their national government takes a firm lead and provides guidance on the treatment of these environmentally-related financial accounting questions.

III. CONCLUSIONS

51. This report is essentially an exploratory piece of research undertaken on a new and emerging area where little prior work exists to provide guidance. Based, as it is, on a range of postal questionnaires and cases, it cannot be regarded as representative of any country or industry. Nevertheless, thanks to the selection procedure used to identify companies, it is hoped that there is, in the results, a useful picture of how many of the world's more environmentally advanced companies are reacting to the emerging issue of sustainability. The majority of the questionnaires were completed by senior environmental executives and this should provide a flavour of how the top levels within leading businesses are thinking about the issue. However, it may be that such respondents were unable to answer as fully about some of the accounting issues as, say, a financial director might have done. The cases do not suggest that this is so. The cases (and some previous work[29]) suggest that accounting functions are more usually passive and often await direction from other areas of the business. This seems in accord with the results produced here.

52. With this in mind, the following tentative conclusions can be drawn:

(a) Most companies -- even leading companies -- have yet to examine fully the nature of sustainability and its implications for current business practices. The vast majority of companies are treating sustainability as an (implicit) extension of environmental management. It is highly unlikely that environmental management can provide sufficient impetus towards sustainability. It is almost certain that the 37 per cent of the respondent companies which believe that they are at or close to a sustainable state are quite simply mis-informed.

(b) While companies do not appear to have fully embraced all the eco-efficiency implications of sustainability, they do seem sensitive to and supportive of the eco-justice elements of the concept. However, the question of who has responsibility for addressing eco-justice issues emerged from the cases as a problematic area. This recognition is not uniform. A surprising 59 per cent of companies appear to believe that sustainability does not involve the needs of future generations. This is also a mis-informed view.

(c) The dominant conclusion which was drawn from this study is that further business-related research needs to be undertaken and much clearer guidance given to businesses world-wide on what sustainability may mean for business.

(d) Environmental managers are constrained in the actions they can take to move their companies along the path to sustainability. Traditional accounting comprises an important part of this constraint. The resultant conflict is more likely to occur in accounting/performance-centred organizations than in values-centred ones. It may also be more likely to occur in very large, centrally controlled organizations than in smaller or de-centralized companies. This is, however, a very tentative conclusion.

(e) The use of LCA and/or the oköbilanz approach to understanding a company's interaction with society and the environment seems to offer considerable promise. Not only will this aid companies in developing their environmental management systems but it will also help the company to identify and confront the issues of sustainability.

(f) The central messages about the assistance that accounting systems can

provide to companies addressing environmental issues has not yet been fully received. Much more can be done in (i) areas where environmental and economic savings can be made; and (ii) recognizing those areas of financial reporting where environmental costs must be identified and reported. Accounting needs to be fully integrated into a company's EMAS strategy.

(g) Other, more innovative approaches to accounting and sustainability need to be further researched, applied and disseminated. It is increasingly clear that there is value -- both economic and environmental -- in these approaches and while such approaches may not always produce the answers that a business (understandably) wants, sustainability -- and forward-looking business management -- demand a re-think of current business orthodoxy. Very few companies are active in the use of these techniques and not many more are actually familiar with them. For example, the EU must do a great deal more to explore and disseminate the implications of any approach to full cost pricing. It does not appear that this message has been understood as yet.

(h) It needs to be recognized that companies cannot be sustainable in the present economic climate. There is widespread agreement that the costs of sustainability-related adjustment will be considerable and to ask any company to act entirely as a philanthropist and/or avoid pursuit of traditional business opportunities is quite unrealistic. Businesses are successful at growth, efficiency, innovation and exploitation of markets. To expect such successful organisms to change their approaches -- without significant changes in the business environment -- is too optimistic. It is highly unlikely that any companies can be sustainable under present economic strictures. If sustainability depends on changes taking place within the current business orthodoxy, then it is not a realistic possibility.

(i) The pursuit of sustainability will involve all parts of society. Voters, consumers, employees, management, politicians etc., will have to address the issues as they relate to their own sphere of influence. Likewise, business and governments will have to confront challenging and difficult choices. In particular, national and pan-national governmental organizations must address sustainability firmly and produce an overview and guidance which only they are equipped to provide. Only then, within this wider context, may any realistic expectation of sustainable businesses be articulated and realized.

Notes

1. United Nations World Commission on Environment and Development. Our Common Future (The Brundtland Report). Oxford: Oxford University Press, 1987.

2. The two terms "sustainability" and "sustainable development" are used synonymously in this report although, for some, they have different connotations.

3. "Towards sustainability". Com(92) 23 final - Vol.I-III, Brussels, 27 March 1992.

4. The International Chamber of Commerce. Business Charter for Sustainable Development. Paris: ICC, April 1991 and first released at WICEM II.

5. EMAS, as the shortened version of the European Union's Environmental Management and Audit Scheme, will be used generically throughout this report to cover environmental management and environmental management systems -- including environmental audits.

6. An important and frequent fallacy is the assumption that efficiency is likely to lead to sustainability. As a company increases its efficiency with respect to resource use, it decreases its *unit* impact on the environment. Companies are a very long way from reducing this impact to either zero or, at least, to the

carrying capacity of the eco-system. If the company is simultaneously expanding and seeking growth -- as most successful companies tend to do -- then, despite the efficiency, the company's impact on the environment is very probably continuing *to increase*, not to decrease. Hence, decreasing per unit impact does not assure an overall decrease in impact.

7. See for example Chapter 14 of Gray, R.H., K.J. Bebbington, and D. Walters. Accounting for the Environment: The greening of accountancy Part II. London: Paul Chapman, 1993.

8. op. cit.

9. Pezzey, J. Definitions of Sustainability, (No.9). United Kingdom: CEED, 1989.

10. The issues of eco-justice and eco-efficiency are explored further in Gladwin, Thomas N. "Envisioning the sustainable corporation" in (ed.) Emily T. Smith. Managing for Environmental Excellence. Washington, DC: Island Press, 1993.

11. This brief summary draws especially from the work of Pearce and Turner see, for example, Pearce D. (ed.). Blueprint 2: Greening the World Economy. London: Earthscan, 1991; Pearce, D. "Towards a sustainable economy: Environment and economics". The Royal Bank of Scotland Review, No.172, December 1991, (pp.3-15); Pearce D., A. Markandya and E.B. Barbier. Blueprint for a Green Economy. London: Earthscan, 1989); plus that of Paul Ekins and Roefie Hueting (see, for example, Hueting, R. New Scarcity and Economic Growth: More Welfare through Less Production? Amsterdam: North Holland, 1980; Hueting, R., P. Bosch and B. de Boer. Methodology for the calculation of sustainable national income. Voorburg: Netherlands Central Bureau of Statistics, 1991; Ekins, P. A New World Order: Grassroots movements for global change. London: Routledge, 1992; Ekins, P. Wealth beyond measure: An atlas of new economics. London: Gaia, 1992).

12. This is explicitly point of view of man as the centre of existence. For a further discussion of this issue in an accounting context, see Gray, R.H. "Accounting and environmentalism: an exploration of the challenge of gently accounting for accountability, transparency and sustainability". Accounting Organisations and Society 17(5), July 1992 (pp.399-426) and Maunders, K.T. and R. Burritt. "Accounting and Ecological Crisis" Accounting, Auditing and Accountability Journal. 4(3), 1991 (pp.9-26).

13. It is well established that the rate of environmental degradation is accelerating. Recent attempts to increase global environmental sensitivity have only, so far, managed to slow the rate of acceleration. Most measures of environmental degradation reflect this. Most measures of economic success also demonstrate a rising trend. Two series which are clearly moving in the same direction point to a high level of correlation and therefore present a *prima facie* case for a relationship between the two.

14. The fuel source would move the line to the left or the right depending on whether it was coal-, natural gas- or nuclear-fuelled electricity generation.

15. Whilst conventional accounting comprises the financial record-keeping and information systems for the management of an organisation together with the annual reporting of financial information for shareholders and other stockmarket participants, accounting need not be so restricted. In principal all flows of information -- whether financial or non-financial -- can be seen as a form of accounting. It is in this sense that we use the term here. See, for example, Gray, R.H. "Corporate Reporting for Sustainable Development: Accounting for sustainability in 2000AD". Environmental Values 3(1) Spring 1994, pp.17-45; Gray, R.H. and K.J. Bebbington. "Accounting, Environment and Sustainability". Business

Strategy and the Environment. Summer 1993, pp.1-11.

16. See, for example, Bebbington K.J., R.H. Gray, I.Thomson & D.Walters "Accountants Attitudes and Environmentally Sensitive Accounting" Accounting and Business Research No.94 Spring 1994 (pp.51-75); Gray R.H., K.J.Bebbington, D.Walters & I.Thomson "The Greening of Enterprise: An exploration of the (non) role of environmental accounting and environmental accountants in organisational change" Critical Perspectives on Accounting (forthcoming);Gray R.H., D.L.Owen & K.T.Maunders Corporate Social Reporting: Accounting and accountability (Hemel Hempstead: Prentice Hall) 1987; Gray R.H., D.L.Owen & K.T.Maunders "Corporate social reporting: emerging trends in accountability and the social contract" Accounting, Auditing and Accountability Journal 1(1) 1988 (pp.6-20); Gray R.H., D.L.Owen & K.T.Maunders "Accountability, Corporate Social Reporting and the External Social Audits" Advances in Public Interest Accounting, Vol.4 1991 (pp.1-21).

17. There is some evidence that conventional shareholders are beginning to demand wider social and environmental information both through the ethical investment funds (see, for example, Harte, G., L. Lewis and D.L. Owen. "Ethical investment and the corporate reporting function". Critical Perspectives on Accounting 2(3) 1991, pp.227-254) and in more direct ways as environmental performance begins to excite shareholders (see, for example, Tilt, C.A. "The influence of external pressure groups on corporate social disclosure: Some empirical evidence". Accounting, Auditing and Accountability Journal, 7(4) 1994, pp.24-46 and Epstein, M.J. and M. Freedman. "Social disclosure and the individual investor". Accounting, Auditing and Accountability Journal, 7(4) 1994, pp.94-109).

18. For another insight into this see, for example, Hawken, P. The ecology of commerce: a declaration of sustainability. New York: Harper Business, 1993.

19. More detail on this is given in Appendix A.

20. These statements were drawn from a wide selection of literature and were expressed in terms which varied the implied message of support or lack of support for various interpretations of the concept.

21. Italy was the only country in which the EU Fifth Action Programme appeared to be notably influential.

22. See, for example, Pezzey op. cit..

23. See, for example, Bebbington, K.J., R.H. Gray, I. Thomson and D. Walters. "Accountants Attitudes and Environmentally Sensitive Accounting". Accounting and Business Research, No.94, Spring 1994, pp.51-75; Gray, R.H., K.J. Bebbington, D. Walters and I.Thomson. "The Greening of Enterprise: An exploration of the (non) role of environmental accounting and environmental accountants in organisational change". Critical Perspectives on Accounting (forthcoming). detail).

24. Elkington, J. (with Tom Burke). The Green Capitalists: industry's search for environmental excellence. London: Victor Gollancz, 1987; Elkington J., P. Knight and J. Hailes. The Green Business Guide. London: Victor Gollancz, 1991; Davis, J. Greening Business: Managing for sustainable development. Oxford: Basil Blackwell, 1991.

25. National industry associations were cited by 21% of respondents and industry-specific associations were cited by 29% of respondents. Of the different industry groupings, the chemical industry associations exhibited the greatest encouragement. Japanese and South African companies were more likely to be influenced by their national industry associations.

26. The percentages for responses to will/will not contribute towards sustainability do not add to 100%. The differences are companies which were unsure.

27. Additional constraints identified by companies included the absence of a trained and educated workforce, existing legislation, difficulty of changing organisations, and, perhaps most importantly, a lack of will and direction from society and government. Several mentions were made that society does not really want sustainability.

28. See, for example, Gray, R.H., K.J. Bebbington, D. Walters. Accounting for the Environment: The greening of accountancy Part II. London: Paul Chapman, 1993; Owen, D.L. Green Reporting: The challenge of the nineties. London: Chapman & Hall, 1992; Owen, D.L., R.H. Gray and R. Adams. "A green and fair view". Certified Accountant. April 1992, pp.12-15.

29. See, for example, Bebbington, K.J., R.H. Gray, I. Thomson and D. Walters. "Accountants Attitudes and Environmentally Sensitive Accounting". Accounting and Business Research, No.94, Spring 1994, pp.51-75; Gray, R.H., K.J. Bebbington, D. Walters. Accounting for the Environment: The greening of accountancy Part II. London: Paul Chapman, 1993; Gray, R.H., K.J. Bebbington, D. Walters and I. Thomson. "The Greening of Enterprise: An exploration of the (non) role of environmental accounting and environmental accountants in organisational change". Critical Perspectives on Accounting (forthcoming).